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Co-Producing Epidemic Response: How Institutional Preparedness and Community Health Knowledge Interacted During Sierra Leone's Ebola Outbreak

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Abstract

In 2018, the World Health Organization warned of a potential reemergence of Ebola Virus Disease in regions previously affected. By May 2026, outbreaks resurfaced in the DRC and Uganda, demonstrating the risk of resurgence in other regions such as the Mano River Union basin. Looking toward future epidemics or novel pathogens, this article contends that effective epidemic response depends on a co-produced system in which institutional readiness and community health knowledge are mutually dependent and jointly influence outcomes. The article examines Sierra Leone's management of the 2014–2015 Ebola crisis, utilizing peer-reviewed research, policy documents, epidemiological data, and reports from affected districts. It tracks: (1) the interaction of institutional weaknesses with community mistrust, rumor-driven perceptions, and culturally rooted burial customs that contributed to faster transmission; and (2) how the response improved as collaboration between institutions and communities grew stronger. Using thematic synthesis and process tracing, the article demonstrates how institutional readiness and community knowledge impacted various stages of the outbreak. The results reveal that epidemic control depends not only on technical readiness but also on institutions' ability to build trust, incorporate local insights, and adapt strategies to community contexts. The conclusion emphasizes that strengthening epidemic preparedness for potential Ebola resurgence or novel pathogens requires institutionalizing co-produced approaches. This article advances conceptual understanding by framing epidemic response not merely as a unilateral deployment of expertise but as a relational process. This perspective challenges deficit-based narratives that portray communities as

obstacles and provides empirical evidence for planning in areas at risk of resurgence.

Keywords: Ebola Virus Disease, epidemic management, institutional preparedness, community health knowledge, Co-Producing Epidemic Response, Sierra Leone

1. Introduction

Public management emphasizes institutional efficiency, but in epidemic contexts, such efficiency is shaped by both technical capacity and relational dynamics. Effective epidemic preparedness and response require not only robust health systems but also the public's ability to interpret, trust, and act on health information (Marston et al., 2017; Verma et al., 2022). While the effectiveness of medical institutions and health officials' expertise shape epidemic management, the success of interventions largely depends on community understanding and behavioral alignment. Thus, this article argues that epidemic response is a co-produced system in which institutional preparedness and community health knowledge function as interdependent determinants of outcomes.

Existing scholarships tend to examine these elements separately. Institution-centric analyses focus on emergency management frameworks, surveillance systems, coordination, and international health regulations (Dorsett, 2020; Olesen & Trabert, 2022; Rennert & Ma, 2023); community-centric studies emphasize cultural practices, mistrust, and social interpretations of disease; and behavioral research highlights risk communication and rumor management (Corbin et al., 2021; Hafez et al., 2024). What remains undertheorized is the interaction between these domains, how institutional capacity and community knowledge reinforce or undermine each other. This study positions such interaction as a key causal factor in epidemic management, especially in settings characterized by limited resources, weak infrastructure, and fragmented communication channels.

The 2014–2016 Ebola Virus Disease (EVD) outbreak in West Africa illustrates these dynamics vividly. Sierra Leone, which recorded an estimated 17,318 cases and 2,536 deaths (Wong et al., 2016), entered the crisis with a health system weakened by civil conflict, a 2012 cholera epidemic, and chronic underinvestment (Gates, 2015). Despite policy initiatives such as the National Health Strategic Plan (2010–2015), Free Health Care in 2010, the Basic Package of Essential Health Services in 2010, and the National Health Compact in 2011, the country had not met the minimum core capacities under the International Health Regulations by 2012 (Government of Sierra Leone, 2015). The outbreak exposed systemic vulnerabilities, including limited laboratory capacity, low staffing, weak surveillance, and poor interagency coordination (Bousso, 2019; Conteh et al., 2023). At the same time, community knowledge, cultural norms, and trust in institutions shaped patterns of transmission and compliance with public health directives (Nuriddin et al., 2018).

This study explores Sierra Leone's handling of the 2014–2015 Ebola crisis by focusing on two key questions: (1) How significant was institutional preparedness in managing the outbreak? and (2) In what ways did public health knowledge influence community behavior and response effectiveness? Examining these questions together, the research emphasizes how the crisis exposed systemic weaknesses and underscores that building resilience for the future requires enhancing both institutional capacity and community health education.

The remainder of the paper proceeds as follows. The next section outlines the methods and reviews literature on institutional preparedness and public health knowledge in emergency management. A case study of Sierra Leone then illustrates how these factors interacted during

the Ebola outbreak. The final section discusses implications for public health management and outlines strategies for enhancing epidemic preparedness in low-resource settings.

2. Methodology

This study employs a qualitative, theory-building case study design to examine how institutional preparedness and community health knowledge interacted during Sierra Leone's Ebola Virus Disease (EVD) outbreak. The goal is not to produce a statistical generalization but to develop a conceptual explanation of epidemic response as a co-produced system shaped by both state capacity and community dynamics.

2.1 Case Selection

Sierra Leone was selected as a critical case because it experienced one of the highest EVD burdens in West Africa and entered the outbreak with significant institutional fragilities, deep community mistrust, and limited health infrastructure. These conditions make it an analytically rich setting for examining how institutional and community factors jointly influence epidemic trajectories.

2.2 Data Sources

The analysis draws exclusively on secondary data, including peer-reviewed scholarship, policy documents, epidemiological reports, and qualitative accounts from affected districts. These sources provide complementary perspectives on institutional actions, community responses, and the evolution of the outbreak.

2.3 Analytic Strategy

The study uses thematic synthesis and process tracing to identify how institutional preparedness and community health knowledge shaped the outbreak's different phases. Evidence is triangulated across institutional reports, community-level studies, and behavioral research to map points of alignment and misalignment. Co-production theory guides the interpretation of these interactions, emphasizing how outcomes emerge from the joint actions of institutions and communities.

2.4 Limitations

The findings of this study should be interpreted with some limitations in mind. First, the results are highly context-specific, reflecting the social, cultural, and health-system conditions in Sierra Leone leading up to the Ebola epidemic. The country entered the crisis with a health system weakened by years of civil conflict, the 2012 cholera outbreak, and chronic underinvestment, all of which shaped both the trajectory of the epidemic and the nature of available information. These contextual factors may limit the extent to which the conclusions can be generalized to other settings or to future outbreaks occurring under different social or institutional conditions.

Second, the study relies exclusively on qualitative secondary sources. These materials provide valuable contextual insight but do not offer systematic or quantifiable measurements. As a result, the analysis is interpretive rather than statistical. However, the paper innovatively

presents a comprehensive model for epidemic management that highlights a co-produced system, going beyond traditional institution-centric studies of epidemics.

3. Literature Review

This review aims to establish a theoretical and contextual foundation for the study, analyzing relevant public management frameworks to elucidate these concepts. It draws on existing research highlighting their interaction in shaping epidemic management and identifies gaps that the study addresses.

3.1 Theoretical Frameworks

This research employs New Public Governance and Communication Theory to understand how institutional preparedness and public health knowledge influenced Sierra Leone's Ebola response. New Public Governance stresses networks, partnerships, and collaboration to tackle complex public service challenges (Osborne, 2006; Peters & Pierre, 2006; Robinson, 2015; Runya et al., 2015; Schuppert, 2011). Advocates of this approach no longer see the state as the sole or primary actor in policymaking or service delivery. Instead, they view government as one stakeholder among many capable of establishing effective policies and services (Songklin, 2024). In resource-limited settings like Sierra Leone, successful epidemic management relies on multi-actor governance involving government agencies, the WHO, international partners, NGOs, local chiefs, and community health workers (Marston et al., 2017). These actors form networks, pooling resources, expertise, and ideas to address resource gaps. This teamwork is vital for institutional preparedness and effective epidemic management.

While horizontal collaboration among leading institutions is vital, fostering vertical collaboration between key stakeholders and local communities is even more essential. The New Public Governance highlights the importance of citizen participation and community engagement in decision-making (Frederickson, 2016). In Sierra Leone, community buy-in was critical for implementing safe burial practices and health measures (Government of Sierra Leone, 2015). Therefore, this study draws on this framework to examine how collaboration, trust, coordination, and shared knowledge among multiple state and non-state actors influence preparedness and epidemic management outcomes.

Communication theory complements this perspective, as its principles elucidate why public health communication succeeds or fails. Garnett (1992) argues that communication is central to effective governance, not an afterthought. Public managers must communicate in ways that build trust, legitimacy, and cooperation. Managerial communication theory emphasizes that effective communication with both internal and external stakeholders is essential for organizational performance (Frederickson, 2016). In epidemic contexts, this principle becomes critical: early in the Ebola outbreak, misinformation and rumors spread faster than official messages. This study, therefore, draws on communication theory to provide a critical lens for understanding why inconsistent or top-down messages failed, while later community-based campaigns proved more effective.

Together, the application of the New Public Governance and Communication Theory to

epidemic management explains that effective preparedness and response emerge when institutions coordinate through networks and communicate in ways that build legitimacy and shape community behavior. This insight informs the co-produced system developed in this study, as shown in the figure (Figure 1) below.

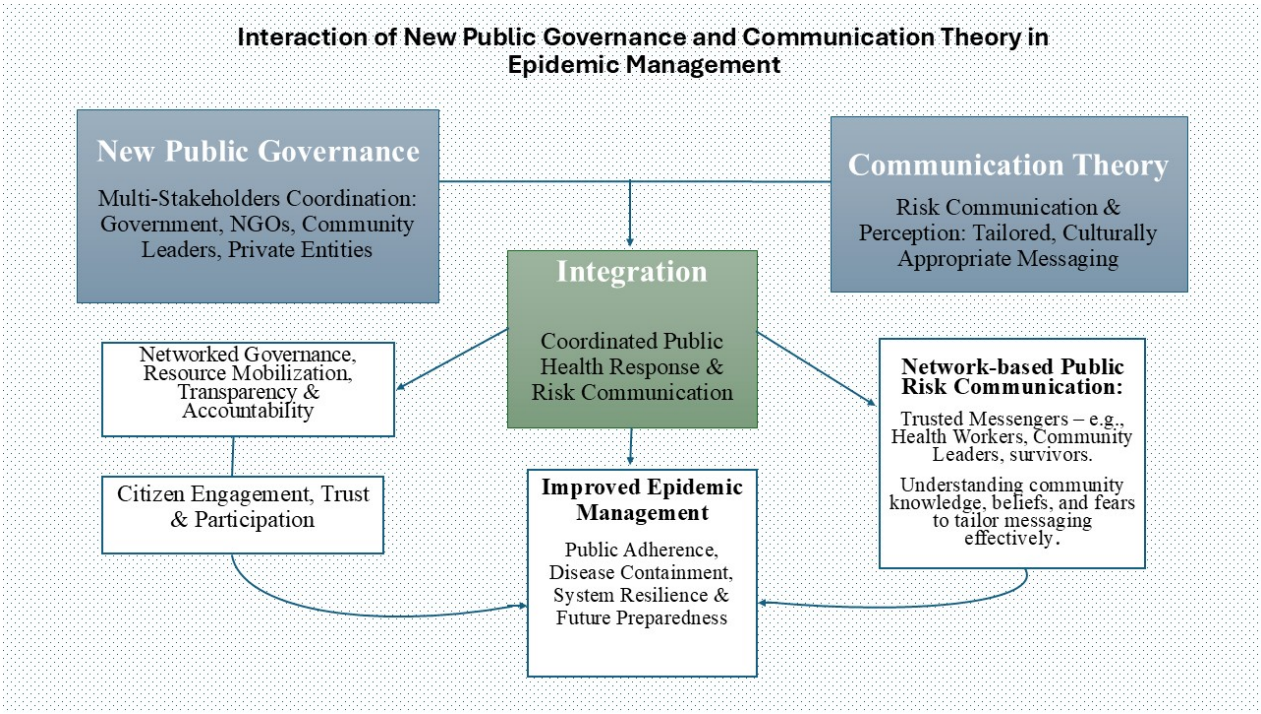

Figure 1. New Public Governance and Communication Theory as a co-produced system for Epidemic Management

As shown in *Figure 1*, this study views epidemic response as a co-produced system in which institutional preparedness and public health knowledge are mutually dependent factors that influence outcomes. Such co-production of New Public Governance and Communication Theory expands critical perspectives on epidemic preparedness and response, making a critical contribution to scholarship on epidemic management. While most models of epidemic preparedness focus on institutional capacity, community knowledge is often regarded as a resource to be mobilized rather than as an active force shaping response strategies. Therefore, this research introduces a more comprehensive and context-sensitive model for epidemic management, especially in resource-limited settings. This integrated approach, supported by lessons from Sierra Leone's Ebola response, stresses that successful containment and resilient health systems rely on combining efficient, collaborative governance with empathetic, culturally sensitive public health communication.

3.2 Institutional Preparedness

Institutional preparedness refers to the ability of governments and health systems to anticipate, respond to, and recover from emergencies (Khatri et al., 2023). Public administration and

public health literature emphasize that readiness depends on infrastructure (laboratories, hospitals, surveillance systems), coordination mechanisms (emergency operations centers, inter-agency task forces), and governance capacity (rule clarity, accountability, leadership) (Leach et al., 2022). Theories of state capacity suggest that governments with stronger bureaucratic and organizational capabilities are better equipped to manage crises, whereas weaker states often have fragmented and delayed responses (Khatri et al., 2023; Savoia et al., 2017). A key reason is that they lack the necessary resources and planning for institutional readiness, as well as strong inter-agency collaboration and external networks needed to fill existing institutional gaps (WHO, 2014).

Khatri et al. (2023) found that many low- and middle-income countries had inadequate preparedness, weak surveillance, and limited resilience. In West Africa, years of underinvestment in health systems, combined with post-conflict fragility, left many countries ill-prepared to respond to high-impact epidemics (WHO, 2014). For example, Cameroon's weak emergency systems hindered its COVID-19 response (Ngo Bibaa, 2020). In Sierra Leone, prior to the Ebola outbreak, only 35 percent of facilities had the basic equipment necessary for service delivery, and none had the full capacity to provide essential laboratory services (Government of Sierra Leone, 2015). As explained in the New Public Governance theory, when resources are scarce, it is crucial for relevant stakeholders and institutions to collaborate and mobilize the resources needed for effective epidemic management. The absence of such inter-agency cooperation, especially during times of limited resources, affects readiness. Institutional preparedness for epidemics thus relies on maintaining efficient coordination, establishing clear command structures, and investing in healthcare infrastructure, all of which depend on strong partnerships.

3.3 Public Health Knowledge

Scholars in health literacy and medical anthropology note that biomedical knowledge is often assumed to be the exclusive domain of trained practitioners, leaving laypeople positioned as passive recipients of care (Nutbeam, 2000; Kleinman, 1980). However, health literacy research emphasizes that knowledge of disease and prevention should not be confined to clinicians (Leach, 2010; Nutbeam, 2000). Managing epidemics requires not only medical professionals' expertise but also public awareness and cooperation. Frameworks such as the WHO Health Systems Framework stress the need for integrated approaches that strengthen both formal systems and community-based responses (WHO, 2014).

According to risk communication theoretical frameworks, particularly the Protective Action Decision Model, public adherence depends not only on message content but also on the credibility of messengers and the relevance of information. Risk perception, trust, situational cues, and social context all influence whether people act on warnings (Lindell & Perry, 2012). Achieving positive behavioral responses during epidemics depends on timely, accurate cues from credible sources. Conversely, mistrusted or conflicting information can undermine compliance.

To maintain trust, research on health behavior change indicates that interventions are more successful when co-designed with communities and delivered through trusted intermediaries.

For example, South Africa's COVID-19 response faced challenges due to weak partnerships between health systems and communities (Rispel et al., 2021). In Sierra Leone, traditional burial rituals, mistrust of government, and reliance on local healers contributed to the initial spread of Ebola (Government of Sierra Leone, 2015). However, later community engagement campaigns, door-to-door health education, and survivor advocates increased cooperation, underscoring the importance of tailored communication strategies (Nuriddin, 2018). The next section discusses a case study of the EVD crisis in Sierra Leone.

4. The EVD Outbreak in Sierra Leone

4.1 Findings

Ebola disease is caused by viruses belonging to the *Orthoebolavirus* genus of the *Filoviridae* family (WHO, 2018). The Ebola virus outbreak in the Mano River basin was first identified in *Guékédou*, Guinea, in February 2014, and it spread to Sierra Leone in May 2014 when infected individuals entered the country from Guinea (Dixon, 2014). A traditional healer from the village of *Kpondu* in Kailahun District, Sierra Leone, treated patients from Guinea who came seeking medical help. On April 28, the healer became extremely sick and died two days later. Soon after, two close relatives living in the same household, the healer's husband and grandson, also died, and most of those who attended her funeral became ill (Wauquier, 2015). Ultimately, fourteen individuals who attended the burial of the traditional healer contracted the disease (ibid). Sierra Leoneans who came into contact with them also contracted the disease, which quickly spread nationwide (Government of Sierra Leone, 2015). Issues in public health knowledge and institutional unreadiness caused the spread, which resulted in the country's prolonged response, as shown in the table below:

Table 1. Timeline of the Ebola Response in Sierra Leone (2014–2016)

Timeline of the Ebola Response in Sierra Leone (2014–2016)		
2014	**May**	▪ Sierra Leone's first confirmed Ebola case was reported in Kailahun district. ▪ National emergency response mechanisms activated.
	June	▪ Rapid spread along trade routes from Kailahun district to Kenema district, then toward Freetown, the capital city. ▪ First Ebola Treatment Centers (ETCs) set up by Médecins Sans Frontières (MSF) in Kailahun and Kenema districts. ▪ Contact tracing attempts began, but the scale was inadequate.
	July -August	▪ WHO declared a Public Health Emergency of International Concern (PHEIC). ▪ Sierra Leone announced a national state of emergency.
	September	▪ The UK government & other international partners commit major support to Sierra Leone. ▪ National three-day lockdown for house-to-house awareness and case finding held. ▪ Case numbers continued to rise sharply.
	October - December	▪ Construction of additional international-supported treatment centers. ▪ Community Care Centers (CCC) established to isolate suspected cases closer to communities. ▪ Burial teams formalized and trained for safe and dignified burials.
2015	**January - March**	▪ More treatment beds and labs became available. ▪ Community engagement improves; people report symptoms earlier. ▪ Operation Western Area Surge in Freetown intensifies case-finding.
	April – June	▪ Cases fell significantly in many districts. ▪ Focus shifts to: o aggressive contact tracing o quarantining households o rapid isolation of final clusters
	July - November	▪ Trial use of **rVSV-ZEBOV** Ebola vaccine ▪ Sierra Leone declared Ebola-free for the first time
2016	**January - March**	▪ A new cluster appears in Tonkolili and Kambia districts. ▪ Rapid response teams contain it. ▪ WHO declares end of Ebola transmission in Sierra Leone.

Prior to the outbreak, knowledge about the disease was limited, even among medical practitioners, with only a few doctors trained specifically to manage such epidemics (WHO, 2014). Furthermore, the health infrastructure (*see Figure 2*) was severely underdeveloped, lacking the capacity, coordination, and expertise needed to manage a crisis of this scale (Government of Sierra Leone, 2015). The sector was already fragile before the epidemic and was still recovering from a civil war that lasted more than a decade.

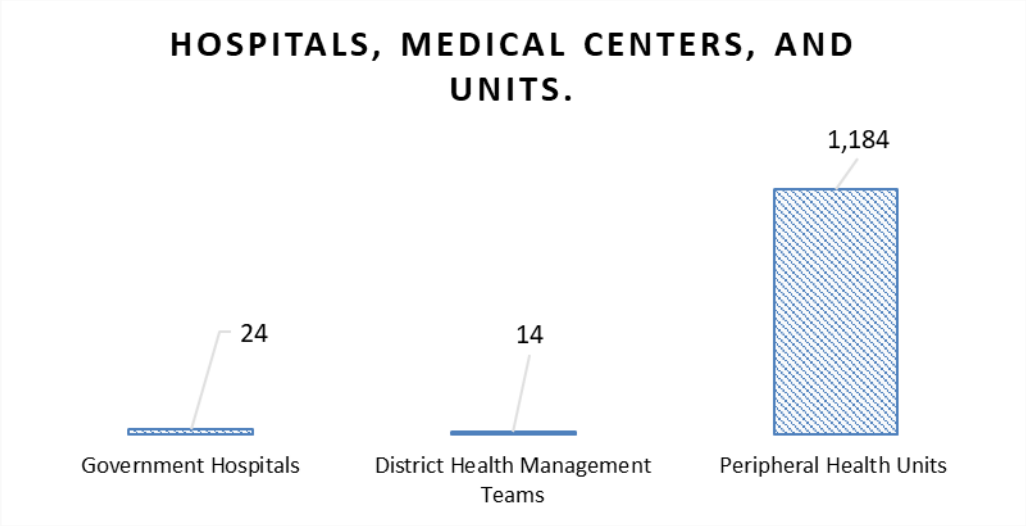

Figure 2. Healthcare Infrastructure

Source: Authors' tabulations from Sierra Leone's Ministry of Health and Sanitation.

This figure shows that there were 24 government hospitals, 14 District Health Management Teams, and approximately 1,184 Peripheral Health Units nationwide. This number was severely inadequate to serve a population of more than seven million people. Besides the total, the distribution of health facilities was uneven across the country. Some districts had more facilities than others, with the capital city housing most hospitals. Also, only 35 percent of facilities had the basic equipment required for service delivery, and none had what was needed to provide all basic laboratory services. Few facilities met the standard requirements for emergency obstetric care, as shown in *Figure 3* below.

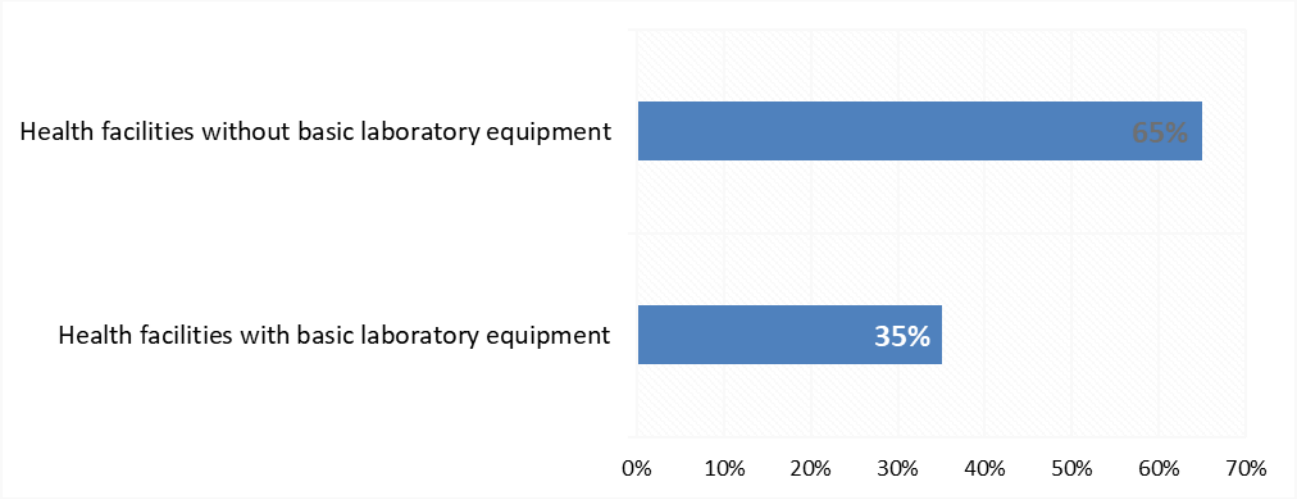

Figure 3. Logistical Challenges in Laboratory Services before the EVD

Source: Authors' tabulations from the Government of Sierra Leone 2015 Report.

In addition to logistical constraints, there were personnel challenges. The health sector faced numerous human resource issues before the outbreak. Even the available health workforce was unevenly distributed, with the highest concentration in Freetown, the capital city (Government of Sierra Leone, 2015). Nationwide, there were fewer specialized medical practitioners than were needed to adequately serve the population. So, when the disease broke out in the province, there was insufficient medical expertise to curb its spread. The distribution ratio for skilled health personnel to population size before the EVD is shown in the figure below.

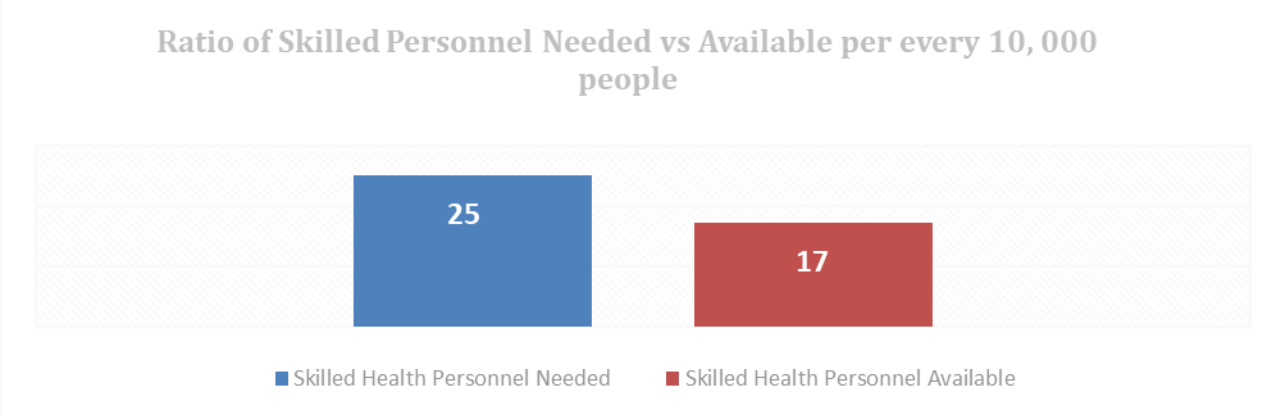

Figure 4. Ratio of Skilled Health Personnel Needed vs Available before the EVD

Source: Authors' tabulations from the Government of Sierra Leone 2015 Report.

The figure shows a significant shortage of medical practitioners compared to the WHO-recommended ratio of 25:10,000. Among skilled medical personnel, fewer than 800 medical doctors were available (0.3 physicians per 10,000 people), compared with 5,000 needed to serve the population effectively (Government of Sierra Leone, 2015). Additionally, the concentration of available staff in the capital city created a serious challenge in providing medical specialists to many provinces during the early response to EVD. This also explains why the response was prolonged and how limited institutional capacity, particularly in personnel, can hinder epidemic management, leading to faster spread.

Moreover, there were apparent gaps in institutional coordination during the outbreak. As a result, the initial government response was slow and inconsistent, with unclear lines of authority despite limited laboratory and surveillance systems (WHO, 2014). Ultimately, poor institutional coordination, delays in funding disbursements, shortages of Free Health Care drugs, a lack of medical specialists in some districts, and the dysfunction or absence of essential medical equipment and basic amenities in various facilities compounded the problem.

Within less than six weeks, the national healthcare system was overwhelmed, and the virus

continued to replicate amongst the population (Wauquier, 2015). The country was the hardest hit in West Africa, with an estimated 17,318 EVD cases and 2,536 EVD deaths (WONG et al, 2016). Of the total national deaths, 442 are children—222 girls and 220 boys. The number of orphans is estimated at 8,345, comprising 4,182 girls and 4,163 boys. Widows are estimated at 954, and widowers at 465. Additionally, 295 healthcare workers and 11 specialized physicians died (Government of Sierra Leone, 2015; Kilmarx et al., 2014). Although the epidemic claimed many lives, mostly women and children, it was particularly concerning that a considerable number of healthcare workers were among the casualties. Many health workers encountered significant, intertwined challenges. They often faced extreme safety risks, working without adequate protective gear, clear protocols, or reliable infection-control systems (Raven et al., 2018), leading to high illness and death rates among staff. This vulnerability caused intense fear and psychological stress, affecting morale, decision-making, and trust among health workers and communities (McMahon et al., 2016). These issues were exacerbated by longstanding training gaps; many workers had limited preparation in areas such as infection prevention, triage, and risk communication (Raven et al., 2018). Although quick training sessions were introduced, they were often inconsistent and too brief to ensure lasting competence. Poor working conditions, such as long hours, emotional fatigue, delayed or irregular pay, and feelings of being undervalued, further diminished motivation, resulting in burnout. These workforce challenges directly impacted community trust and service quality. Communities saw both the bravery and fragility of health workers, and their responses, whether confident or fearful, influenced people's willingness to seek care, report symptoms, or follow public health advice (McMahon et al., 2016). As such, the health workforce's strengths and weaknesses played a crucial role in epidemic control, shaping overall transmission rates and response.

Another major factor in the spread of disease is gaps in public health knowledge. At the community level, lack of accurate information, widespread misinformation, and trust issues led to resistance against health measures (Kinsman et al., 2017; Nuriddin et al., 2018). During the initial stages of the outbreak, there was notable misinformation and disinformation. One key piece of misinformation claimed that bushmeat spread the disease and that avoiding meat would prevent transmission (Bonwitt, 2018). Disinformation included claims that the outbreak was politically motivated to kill people (Bannister-Tyrrell, 2015), particularly in opposition strongholds, because the disease was initially more prevalent in those areas than in government-supporting regions. Rumors that Ebola was a government conspiracy or that health workers were intentionally spreading it to kill people increased hostility, leading to attacks on response teams (Government of Sierra Leone, 2015; Kinsman et al., 2017).

However, initial efforts to promote public acceptance of the virus's existence and to encourage people to treat it with utmost seriousness emphasized that Ebola was a deadly disease with no cure. While this effort aimed to promote community acceptance of the disease, it unintentionally undermined confidence in the health system's ability to effectively treat patients (Kinsman et al., 2017). The government launched a public education campaign, using the Social Mobilization Action Consortium (SMAC) Consolidated Message Guide for Ebola Communication, which played a key role in implementing a participatory

communication approach. The SMAC was an official, regularly updated document designed to serve as a reference, presenting accurate, standardized information in simple language and key message format, such as ‘Ebola is real’ and ‘Stop Ebola’ (Ministry of Health and Sanitation, 2015). Communication channels include radio and TV broadcasts, posters and billboards, telephone text messages, and interactive feedback methods such as the 117 emergency toll-free line for public calls, community mobilizers, and door-to-door visits. This created two-way communication loops, allowing stakeholders and responders to address perceived or actual shortcomings in the response (Kinsman et al., 2017). Community engagement was further enhanced by the decentralized medical facilities and teams. Response teams conducted town hall meetings, showcased triage procedures, and addressed rumors about “Ebola camps.” In the midst of these efforts, the ability of health information systems to inform decision-making was limited by the timeliness, completeness, and quality of data (Government of Sierra Leone, 2015). Consequently, some people underestimated the severity of the disease and continued traditional practices such as burial rituals involving direct contact with corpses, which contributed to super-spreader events (Wauquier, 2015).

These trust deficits also reflected underlying power dynamics and deeper political and social structures. These structures influenced how communities assessed risk, responded to directives, and interacted with the health system. Power and political influences heavily shaped relationships between institutions and local populations, affecting both governance effectiveness and trust levels. Historical tensions stemming from civil conflict, uneven development, and perceptions of neglect meant that official messages were often viewed skeptically. Communities interpreted public health messages within existing power and trust relations, questioning who issued the instructions, whose interests they served, and who might benefit or suffer (Kinsman et al., 2017). Meanwhile, local leaders such as chiefs, religious figures, and youth groups wielded substantial social influence, sometimes greater than that of formal authorities. Their involvement could either support or challenge institutional efforts, depending on how they are included. When national policies were enacted without engaging local leaders, they were often seen as coercive or politically biased, fueling rumors that Ebola was fabricated or exploited for profit (Grant, 2014). On the other hand, incorporating community leaders into decision-making helped transform institutional authority into culturally resonant guidance. Realizing this, the government and its partners launched targeted community engagement involving chiefs, religious leaders, and survivors, which effectively changed behavior (Kinsman et al., 2017; Nuriddin, 2018), demonstrating that culturally informed communication can overcome distrust. This transparent approach fostered trust and improved acceptance of isolation and treatment centers. Moreover, survivor testimonials on radio, in markets, and on posters helped reduce fatalism and stigma by showing that early treatment saves lives, providing emotional credibility beyond technical messages. Religious leaders, like Imams and pastors, used sermons and the radio to promote Ebola safety. Consequently, there was substantial social capital, as community engagement was intensified and prioritized in the planning and delivery of health services, and risk communication and social mobilization were integrated to strengthen the health system (WHO, 2014).

These efforts, in conjunction with interventions by international partners, supported national systems. International partners played a crucial and sometimes conflicting role in crises. During Sierra Leone's Ebola crisis, they provided essential resources like funding, logistics, technical expertise, laboratory support, and surge personnel, significantly boosting the state's ability to detect, treat, and contain the epidemic (Government of Sierra Leone, 2015). These efforts helped establish emergency coordination, improve surveillance, and standardize clinical and infection prevention protocols, achievements that domestic resources alone could not have accomplished quickly. However, social scientists have criticized the outside intervention approach to crisis as sometimes leading to a misfit between donors and local needs (Comerio, 1998). Basically, their involvement can sometimes bring governance challenges. Decision-making often reflects donor priorities and global health agendas, sometimes overshadowing local insights and customary considerations, thereby limiting community participation. Early in the Ebola response, in some cases, visible foreign agencies fostered perceptions of external control, with some blaming Ebola on Western governments (Lokongo, 2015), fueling existing mistrust toward authorities**.** Conversely, when international actors finally collaborated with local leaders, integrated health workers, and tailored strategies to cultural contexts, they enhanced legitimacy and trust in both national and global health efforts (Kinsman et al., 2017).

This uneven engagement meant international aid could both build capacity and deepen dependency, fostering trust but also skepticism. Successful multi-level epidemic governance relies not only on the extent of international support but also on how well it aligns with local needs, remains accountable to communities, and focuses on strengthening institutions for the long term, beyond immediate crisis response. Ultimately, epidemic governance requires a co-produced process of negotiating power, with collaboration relying on navigating social hierarchies, political histories, and legitimacy claims.

With these efforts, Sierra Leone successfully reduced disease transmission rates until the World Health Organization declared the end of Ebola transmission in the country. Since then, the government and its partners have launched several interventions to strengthen the health care system, including the Sierra Leone Ebola Recovery Plan, the National Public Health Agency and strengthened its Integrated Disease Surveillance and Response (IDSR) system, adding more nurses to the government payroll, expanding the Free Health Care service, constructing and refurbishing hospitals, establishing the National Emergency Medical Services, and promoting sanitation and personal hygiene awareness (Government of Sierra Leone, 2015). Recent efforts include plans to build three new Class A hospitals in Moyamba, Karene, and Bonthe districts, as well as a modern pediatric hospital in Freetown, marking a shift from the fragmented pre-Ebola system. These initiatives have helped improve the health sector's capacity, as seen in the country's effective response to COVID-19. Unlike Ebola, COVID-19 was contained and managed with only 126 deaths from 7,779 confirmed cases. Compared with the 2,536 EVD deaths, it is apparent that institutional strengthening and public health awareness combined can make a difference in epidemic management.

However, sustaining these gains was tough as funding declined, with broader economic challenges further weakening reforms, revealing a pattern of rapid crisis gains struggling to

sustain investment. Sierra Leone's experience shows that capacity building is ongoing; progress in surveillance and community engagement is fragile and requires continuous support to sustain improvements.

4.2 Discussion

The Sierra Leone EVD experience highlights that epidemic management requires collective strengthening of institutions and individuals at all levels. This study's approach, which combines institutional preparedness with public health knowledge to examine epidemic management, adds to the existing literature by bridging the top-down gap in current studies. Much of the existing research views epidemic management from a scientific and practitioner perspective, with limited attention to local and cultural factors. Integrating the new public governance and communication theories offers a fresh perspective on a co-produced system that emphasizes social and cultural contexts. A purely rational-scientific approach to health is insufficient to address epidemics. This framework underscores that health governance, guided by New Public Governance, must be culturally sensitive and incorporate local narratives informed by Communication Theory to build trust, as demonstrated by the success of "safe and dignified burials" in Sierra Leone, which respected local customs.

Additionally, this study provides new insights into how to enhance system resilience through trust. New Public Governance emphasizes transparency and citizen-focused services. When combined with Communication Theory's focus on empathy and clarity to foster trust, this approach creates a more resilient system in which the public is more likely to follow official advice, a critical issue during the Sierra Leone Ebola crisis. This approach offers practical tools to translate scientific knowledge into actionable, locally relevant public health messages. The integrated framework presents a more comprehensive approach for policymakers, ensuring policies are not only efficient (a concern of New Public Governance) but also inclusive, ethical, and publicly supported (concerns of both New Public Governance and Communication Theory). This holistic view helps balance expert risk assessment with public perception, leading to more effective and fair health outcomes. Therefore, this study demonstrates that epidemic management challenges were not solely due to the virus's virulence but also gaps in the interaction between formal institutions and communities.

5. Public Health Management Implications and Lessons Learned

In managing emergencies such as epidemics, institutional readiness and public health knowledge reinforced each other. Institutional problems, such as inadequate resources, limited horizontal and vertical multi-stakeholder collaboration, inconsistent messaging, inadequate motivation among health workers, and unclear decision-making processes, undermined management processes and thus public trust, thereby reducing community compliance. Meanwhile, community resistance further burdened already stretched institutions, overwhelmed treatment facilities, and impeded contact tracing. This cycle underscores that epidemic preparedness is both a governance issue and a challenge to public health literacy.

The Sierra Leone case highlights three key lessons. First, institutional readiness begins with investing in healthcare infrastructure, establishing clear command chains, and ensuring

effective coordination with relevant partners, rather than relying solely on a single state or non-state entity. It is crucial to incorporate local knowledge and expertise into the response, as international-led efforts often disrupt local social system dynamics. Second, public health education campaigns should be continuous rather than solely crisis-driven, fostering trust and resilience ahead of outbreaks. Public trust in government and health institutions remained low initially, hampering early disease surveillance and reporting. This challenge was intensified by stigma and fear. Nevertheless, effective communication from community health workers, EVD survivors, and local leaders played a vital role in clarifying misconceptions, encouraging preventative actions, and motivating individuals to visit treatment centers. Third, effective epidemic response requires bridging the gap between institutions and communities by combining scientific/medical expertise with local cultural practices. As public knowledge of EVD grew, many people became aware of the symptoms and the importance of prevention. The World Health Organization reported that EVD risk cases might reappear in formerly affected countries (WHO, 2018). Looking ahead to future health crises, whether Ebola, COVID-19, or new pathogens, success hinges on enhancing both institutional capacity and public education.

6. Conclusion

The Ebola outbreak in Sierra Leone from 2014 to 2016 highlighted the importance of a co-produced system of institutional expertise and public health understanding in shaping epidemic outcomes. The crisis's severity was driven not just by the virus's spread but also by weak institutions and rampant misinformation, which together led to delayed responses, community resistance, and uncontrolled transmission (Nuriddin, 2018; Wauquier, 2015). Although biomedical treatments were essential, the case shows that effective epidemic management fundamentally depends on governance and social trust (Nutbeam, 2000; Kleinman, 1980).

The Ebola epidemic in Sierra Leone revealed both vulnerabilities and opportunities. Fragile healthcare systems, ambiguous command structures, and reliance on international aid highlighted the critical need to reinforce local institutions. Conversely, the success of community-driven education initiatives and survivor-led advocacy demonstrated the strength of local actors and the significance of cultural legitimacy in health efforts. Post-Ebola reforms, including investments in laboratories and disease monitoring, are vital advancements; however, their longevity depends on sustained political will and international support.

On a broader scale, this case highlights that epidemic preparedness relies on effective governance and community health literacy. Additionally, public health frameworks emphasize that without culturally appropriate communication and continuous education, even the most advanced interventions will fail.

Sierra Leone's Ebola response highlights the importance of integrated epidemic governance. Improving institutional readiness involves more than just establishing laboratories and training health workers; it also means formalizing transparency, building trust, and promoting collaboration with local communities. Additionally, boosting public health knowledge is an ongoing commitment, not a single event, representing a long-term investment in resilience.

The crucial lesson for future outbreaks, whether Ebola, COVID-19 variants, or new zoonotic diseases, is that resilient societies depend not only on strong institutions or informed citizens, but on the active interaction between them. Sierra Leone's Ebola crisis thus offers a valuable case to examine how the combination of weak institutions and limited public health literacy can escalate a local outbreak into a national crisis. Thus, this study's major contribution is to propose an integrated approach that argues that effective epidemic management depends not only on top-down institutional capacity but also on networked governance across all levels and on culturally sensitive, effective risk communication that fosters public trust and compliance. Future studies should consider collecting fresh empirical evidence or triangulating primary data to achieve a more robust understanding. This will provide as much empirical depth as possible for capturing on-the-ground complexities and individual-level behavioral data at scale.

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